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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,304	12/12/2003	Hiroyuki Urakami	041514-5318	7325
55694 7590 01/28/2010 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209				
EXAMINER				
SHERMAN, STEPHEN G				
ART UNIT		PAPER NUMBER		
2629				
MAIL DATE		DELIVERY MODE		
01/28/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/733,304

Applicant(s)

URAKAMI ET AL.

Examiner

STEPHEN G. SHERMAN

Art Unit

2629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
- Paper No(s)/Mail Date 11/5/2009
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 December 2009 has been entered. Claims 1-6 are pending.

Response to Arguments

2. Applicant's arguments filed with respect to claims 1-3 have been fully considered but they are not persuasive.

On pages 6-11 of the response filed 10 December 2009 the Applicant argues that the newly amended features of the claims overcome the 112 rejection and are not taught by the references, however, based upon a new reading of the Honda '672 reference in light of the amendments made, the reference teaches of adjusting the subfields for at least two brightness regions (Figure 24, C and D, where the subfields are in different orders.) without changing the total number of subfields in each field for the two brightness regions (Figure 24, C and D each have 5 total subfields.). Further,

the 112 rejection is not overcome because the claim still recites "adjusting the number of subfields" while then stating "without changing the total number of subfields" which is misleading. The examiner fully appreciates that in the Applicant's specification the actual number of subfields is not changed, which is why the Applicant should not recite "adjusting the number of subfields" in the claims, but rather alternative language should be used because the wording of the claims would lead one to believe that the actual number is being changed. The examiner suggests changing the claim to recite "adjusting the number of subfields employed for emission at respective brightness levels within each brightness regions is adjusted" as found in the last paragraph on page 20 of the Applicant's specification which would both overcome the 112 rejection and the prior art rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 as amended recites "without changing the total number of subfields" but also recites "a controller for...adjusting the number of subfields..." Thus, while the examiner appreciates what the Applicant's invention is, the claim language is unclear as

to what the Applicant means by "adjusting the number of subfields". The language of saying "adjusting the number of subfields" is misleading if the Applicant actually means that the total number of subfields is unchanged.

For the purpose of examination, the Examiner will interpret that adjusting the "number of subfields" just means that the subfields are somehow adjusted without changing the actual number of subfields for the two brightness regions in each field.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (US 2002/0030672) in view of Honda et al. (US 6,950,114).

Regarding claims 1, Honda et al. (US 2002/0030672) disclose a display device including a display panel (Figure 1), wherein each field of an image signal is divided into a plurality of subfields (Figure 24(c) and (d)), a total number of subfields in each said field is unchanged (Figure 24 shows that for patterns c and d the total number of subfields in each field is unchanged.), the display panel includes a plurality of pixel cells for a plurality of pixels respectively, and gray scale display is performed by based on the selectively causing emission in the pixel cells image signal for each of the subfields (Paragraph [0031]-[0032] explain that pixel cells are provided. Figure 3 and paragraph [0036] explain about all of the possible luminance values and paragraph [0048] explains how the luminance values are associated with subfields.), and said emission takes place in each of the subfields such that said emission continues throughout each said field (Figure 24 shows that each subfield has an emission portion I, and thus emission takes place in each subfield and continues throughout the field.), the display device comprising:

a brightness frequency data circuit for generating frequency data indicating a number of pixels at each same brightnesses in a brightness distribution for each field of the image signal (Figures 1 and 2 and paragraphs [0036]-[0040] and [0042]-[0045] explain that according to pixel data, the 1H line luminance distribution analyzing circuit 3 creates accumulated frequency data and a luminance distribution.);

a controller for dividing the brightness distribution into at least a first brightness region and a second brightness region, and adjusting the number of subfields belonging

to the first brightness region and second brightness region based on the brightness frequency data associated with the first brightness region and second brightness region, respectively, without changing the total number of the subfields in each said field (Figure 4 and paragraphs [0047]-[0048] explain that the drive control circuit 2 divides the brightness distribution into at least a first brightness region C and a second brightness region D, where Figure 24 shows that the total number of the subfields used for the brightness regions C and D are unchanged in each said field, i.e. each are 5, while the order is adjusted as shown in Figure 24 meaning that the "number of subfields" are adjusted for these two brightness regions.); and

a multi-grayscale processing circuit (Figure 17, 33) for error diffusion processing or dither processing on the image signal for each field (Paragraph [0054] explains that error diffusion processing and dither processing is done by multi-gradation processing circuit 33. Since this processing is done on each line of the display in each field, then the processing is two-dimensional and is done each field.).

Honda et al. (US 2002/0030672) fail to teach wherein said brightness frequency data is generated only on a field-by-field basis.

Honda et al. (US 6,950,114) disclose a display device which has a brightness frequency data circuit for generating brightness frequency data indicating a number of pixels at each same brightness in a brightness distribution for each field of the image signal, said brightness frequency data is generated only on a field-by-field basis (Figure 5 shows the histogram memories where column 3, line 61 to column 4, line 7 explain

that these accumulate brightness frequency data for a number of pixels only every field.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of only generating frequency data every field as taught by Honda et al. (US 6,950,114) with the display device taught by Honda et al. (US 2002/0030672) in order to allow for an easier overall compensation that reduces complexity of calculations.

Regarding claim 2, Honda et al. (US 2002/0030672) and Honda et al. (US 6,950,114) disclose the display device according to Claim 1.

Honda et al. (US 2002/0030672) also disclose wherein the controller increases the number of the subfields used for the brightness region when a number indicated by the brightness frequency data is larger than a predetermined value (Figure 4 shows that when the frequency data indicates that the brightnesses needed exceed the thresholds of the limitations set by patterns B, C and D, that pattern A is used, which requires more subfields than the other patterns as explained by paragraph [0048].).

Regarding claim 3, Honda et al. (US 2002/0030672) and Honda et al. (US 6,950,114) disclose the display device according to Claim 1.

Honda et al. (US 2002/0030672) also disclose wherein the greater a number of the subfields used for the brightness region, the more the controller shortens a period of emission of the pixel cells performed in each subfield (Figure 24 shows that when only 5

subfields are used as shown in (b) the period for emission is longer for SF5 than in the period for emission for SF5 as shown in (a) where there are 10 subfields.).

Allowable Subject Matter

8. Claims 4-6 are allowed.
9. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance is the recitation of the "brightness frequency data circuit," "logarithmic conversion circuit," "clipping circuit," "cumulative brightness frequency data circuit," and the "delimiter value generation circuit" all working in conjunction with each other to produce the values which allow for the driving of the pixels, the structure not found singularly or in combination in the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN G. SHERMAN whose telephone number is (571)272-2941. The examiner can normally be reached on M-F, 7:30 a.m. - 4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen G Sherman/
Examiner, Art Unit 2629

26 January 2010